IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
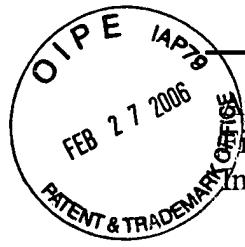
Application No.: 10/007,816 § Filed: November 9, 2001 § Inventor(s): § Carl B. Frankel, Steven A. Sivier, § James P. Freyensee, and Carl § Cavanagh § § Title: Message Packet Logging in § a Distributed Simulation § System § § § § § §	Examiner: Silver, David Group/Art Unit: 2128 Atty. Dkt. No: 5681-03600

PRE-APPEAL BRIEF REQUEST FOR REVIEW

ATTN: Mailstop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicants request review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a notice of appeal. Independent claims 1, 20, and 31 are rejected under 35 U.S.C. § 102(b) as being anticipated by Damani and by Ulrich; and under 35 U.S.C. § 103(a) as being unpatentable over Preiss. Independent claim 13 was rejected under 35 U.S.C. § 102(b) as being anticipated by Preiss. Applicants set forth the clear errors in the rejections below. Please note that for brevity, only the primary arguments directed mainly to the independent claims are presented, and that additional arguments, e.g., directed to the subject matter of the dependent claims, will be presented if and when the case proceeds to Appeal.

Claims 1, 20, and 31 are Patentable over Damani

Applicants respectfully submit that each of claims 1, 20, and 31 recite combinations of features not taught or suggested in the cited art. For example, claim 1 recites a combination of features including: "at least one logging node of the plurality of nodes is configured to log the message packets in <u>one or more log files on at least one non-volatile storage medium</u> during the

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simulation, wherein the at least one logging node is separate from nodes targeted by the message packets".

The Office Action asserts that Damani teaches message logging at section 2, paragraph 2, lines 1-5. These teachings are: "To avoid both synchronization and domino effect, some schemes also save the received messages on stable storage. This is called *message logging*. After a failure, a process restores its last checkpoint and replays the logged messages" (emphasis in original). While Damani does teach the general concept of message logging, Damani is silent on which node does the message logging. If anything, the last sentence quoted from Damani above implies that the process that is performing the simulation does the logging for that process. Thus, Damani does not teach or suggest "the at least one logging node is separate from nodes targeted by the message packets".

The Office Action also asserts that Damani teaches "the at least one logging node is separate from nodes targeted by the message packets" in the abstract, last four lines, stating that Damani allows for clustering of message logging nodes and therefore has at least two nodes that are separate from other nodes targeted by message packets (see Office Action, page 2, item 6). Applicants respectfully disagree. Damani teaches "A simple change is made in existing GVT algorithms to compute SGVT. Our use of transitive dependency tracking eliminates antimessages. LPs are clubbed in clusters to minimize stable storage access time" (Damani, abstract, last 5 lines). Thus, Damani does teach clustering of LPs (which are logical processes in the simulation -- see, e.g., Damani section 1, first two sentences). However, the clustering of LPs does not teach or suggest the above highlighted features of claim 1. Rather, the clustering of LPs merely teaches that multiple LPs are clustered for access to stable storage, and each LP still logs the messages that are targeted at that LP. Thus, Damani does not teach or suggest the above highlighted features of claim 1.

Claims 1, 20, and 31 are Patentable over Ulrich

The Office Action also asserts that Ulrich teaches the features of claim 1. Specifically, the Office Action asserts that Ulrich's storing of message packets in memory for access by the CPU comprises message logging. Applicants respectfully disagree. Furthermore, Applicants submit that Ulrich's storing of messages in memory does not each or suggest "log the message packets in one or more log files on at least one non-volatile storage medium" as recited in claim 1. Furthermore, Ulrich's "nodes" are exercise machines, and the "simulation" of Ulrich is related to providing a simulated environment for the users of the exercise machines. This has nothing to do with simulating a system under test, as recited in claim 1.

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The Response to Arguments section of the present Office Action asserts that Ulrich teaches "at least one logging node of the plurality of nodes is configured to log the message packets in one or more log files on at least one non-volatile storage medium" at col. 4, lines 62-65 and col. 4, lines 28-29. However, col. 4, lines 59-65 of Ulrich teach "Regardless of the type of microprocessor employed, the computer typically also includes one or more electronic storage devices for storing one or more databases which describe the simulated environment(s). The storage devices can include CD-ROMs, hard disk drives, floppy disk drives, read only memories (ROMs), or random access memories (RAMs)." Thus, Ulrich's computers have storage devices that store databases describing the simulated environment. Such databases are not message packets [that communicate simulation commands and signal values], as recited in claim 1.

Additionally, the Response to Arguments section asserts that the simulation of a system under test is a statement of intended use. Applicants respectfully disagree. Rather, the simulation of a system under test defines the nodes. For example, claim 1 recites "the plurality of nodes are configured to communicate simulation commands and signal values for the system under test using message packets transmitted between the plurality of nodes". There is no disclosure in Ulrich that his system of networked exercise machines is capable of such operation. Rather, the information passed between Ulrich's networked exercise machines is summarized at col. 7, lines 34-42: "As mentioned previously with reference to FIG. 3, the computer (18 in FIG. 1, 32 in FIG. 2A) can be interconnected with computers of one or more other exercise apparatus via a network interface module. With two or more of these exercise apparatus networked together, the computers can communicate and share information and allow the users to navigate freely in the same simulated environment and to interact as teammates or competitors". The information may include user width, pedal speed, and steering tilt (Ulrich, col. 8, lines 19-20), voice (Ulrich, col. 8, lines 42-43), etc. This has nothing to do with simulation commands and signal values for the system under test.

Furthermore, the present Office Action alleges that Ulrich teaches a system under test as the electronic system being simulated at col. 7, lines 24-35. However, these teachings are: "The digital control system 82 is connected to the brake 79 by wires 80. Responsive to the interactive software in the computer 32, the control system 82 controls the pedal resistance of the braking device 79 electronically, thereby emulating the traditional flywheel/freewheel arrangement to provide the proper combination of pedal resistance and inertia for smooth pedaling revolutions. For example, an extremely light resistance is provided to simulate downhill travel and higher resistance is provided to simulate gear changes, wind resistance, and hills. The pedals can be driven backwards to reverse direction." Thus, the electronic system is not the system under test,

but rather is the system that is performing the simulation (of a pedaled vehicle, such as a bicycle, which is not an electronic system).

Claims 1, 20, and 31 are Patentable over Preiss

Applicants respectfully submit that each of claims 1, 20, and 31 recite combinations of features not taught or suggested in Preiss. For example, claim 1 recites a combination of features including: "the at least one logging node is separate from nodes targeted by the message packets". The present Office Action alleges that Preiss teaches the above highlighted features on page 20, citing the "to other processors" and "from other processors" portions of the figure. However, the other processors referred to in the figure appear to be the other processors that are executing other LPs. Certainly, nothing in the figure on page 20 teaches or suggests that any of the processors is "at least one logging node . . . separate from nodes targeted by the message packets" as recited in claim 1.

The present Office Action also takes Official Notice with respect to "log[ging] the message packets in one or more log files on at least one non-volatile storage medium during the simulation". Applicants respectfully traverse. Furthermore, Applicants respectfully submit that the Office Action has failed to form a *prima facie* case of obviousness. The Office Action asserts that it would be obvious to combine stable storage with Preiss "in order to achieve the many benefits of stable storage. Benefits include the ability to synchronize data flow and have stable storage means." Applicants respectfully submit that stable storage has nothing to do with synchronizing data flow, and the second "benefit" merely states stable storage again. This circular reasoning cannot be used to support a motivation to combine.

Conclusion, Claims 1, 20, and 31

For at least all of the above stated reasons, Applicants submit that claim 1 is patentable over the cited art. Claims 20 and 31 each recite combinations of features similar to the above highlighted features of claim 1, and thus are patentable over the cited art as well. Claims 2-6 and 10-11 (being dependent from claim 1), claims 21-25 and 27-30 (being dependent from claim 20), and claims 32-37 (being dependent from claim 31), are similarly patentable over the cited art for at least the above stated reasons. Each of claims 2-6 and 10-11, 21-25, 27-30, and 32-37 recite additional combinations of features not taught or suggested in the cited art. **Applicants reserve the right to highlight such additional combinations of features on appeal**

Claim 13 is Patentable over Preiss

Claim 13 recites a combination of features including: "read first message packets from a log file, wherein the first message packets were transmitted to a previous node simulating the portion in a preceding simulation". The present Office Action alleges that Preiss teaches the above highlighted features at page 11, the model ReadFromFile. While this page does show code that purports to read events from an input file, there is no teaching that these events include "message packets [that] were transmitted to a previous node simulating the portion in a preceding simulation". Accordingly, Preiss fails to anticipate claim 13 for at least this reason.

Furthermore, claim 13 recites a combination of features including: "read second message packets from the log file, wherein the second message packets were sourced by the previous node simulating the portion in the preceding simulation". The present Office Action alleges that Preiss teaches the above highlighted features at page 12, the model WriteToFile. This page shows code that purports to write events to a file, which has nothing to do with reading second message packets from a log file. Furthermore, nothing in Preiss teaches or suggests "read second message packets from the log file, wherein the second message packets were sourced by the previous node simulating the portion in the preceding simulation".

For at least the above stated reasons, Applicants submit that claim 13 is patentable over Preiss. Claims 14-19, being dependent from claim 13, are similarly patentable for at least the above stated reasons. Each of claims 14-19 recites additional combinations of features not taught or suggested in Preiss. **Applicants reserve the right to highlight such additional combinations of features on appeal.**

For at least the above stated reasons, Applicant submits that the application is in condition for allowance, and a Notice thereof is respectfully requested. If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5681-03600/LJM. Also enclosed herewith are the following items: a Return Receipt Postcard; and a Notice of Appeal

Respectfully submitted,
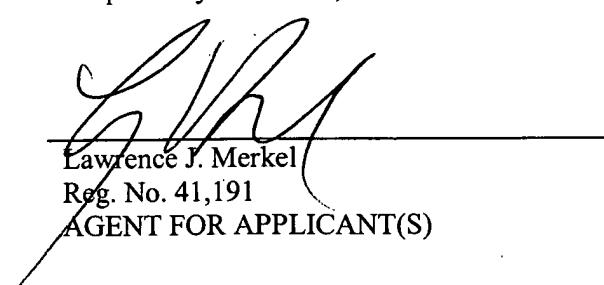
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